



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/912,795	07/24/2001	Jason F. Hunzinger	09752-095001	6354

27572 7590 06/25/2004

HARNESS, DICKEY & PIERCE, P.L.C.  
P.O. BOX 828  
BLOOMFIELD HILLS, MI 48303

EXAMINER

CONTEE, JOY KIMBERLY

ART UNIT	PAPER NUMBER
----------	--------------

2686

DATE MAILED: 06/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/912,795

Applicant(s)

HUNZINGER, JASON F.

Examiner

Joy K Contee

Art Unit

2686

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 24 July 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-70 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 14-20, 53, 54 and 58-70 is/are allowed.
- 6) ☒ Claim(s) 1-4, 11, 13, 21-36, 41-43, 48, 51 and 55-57 is/are rejected.
- 7) ☒ Claim(s) 5-10, 12, 37-40, 44-47, 49, 50 and 52 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 8.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

### DETAILED ACTION

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

13,  
2. Claims 1,2,11,21-23,26-31,34-36,41-43,48,55-57 are rejected under 35 U.S.C. 102(e) as being anticipated by Tiedemann, Jr. ("Tiedemann"), U.S. Patent No. 5,926,470.

Regarding claim 1, Tiedemann discloses a method of determining handoff timing parameters for a wireless device, comprising:

- a) measuring a call characteristic (i.e., pilot signal strength) (col. 13, lines 49-58);
- b) determining if the call characteristic is relevant to current conditions at the mobile station (i.e., conditions of Active Set)(col. 14, lines 16-27);
- c) in response to determining that the call characteristic is relevant, determining at the mobile station, an adapted value for handoff timeout based on the call characteristic (col. 15, line 57-col. 16, line 21);
- d) setting the handoff timeout to the adapted value; and
- e) deciding to send a handoff request if the handoff timeout expires (col. 15, line 57 to col. 16, line 21).

Regarding claim 2, Tiedemann discloses the method of claim 1 wherein the call characteristic is selected from the group consisting of handoff frequency, energy level

Art Unit: 2686

crossing (i.e., reads on pilot strength), inherent motion of the wireless device, energy variance (i.e., how pilot strength varies from threshold), and signal quality (col. 10, lines 12-19 and col. 13, lines 49-58 and col. 16, lines 5-21).

Regarding claim 11, Tiedemann discloses the method of claim 1 wherein determining the adapted value for handoff timeout is executed at a time selected from the group consisting of at the time of requesting to add a potential pilot, at the time of requesting to drop a current pilot, at the time of measuring the call characteristic, at the time a pilot energy crosses a threshold, and periodically (col. 16, lines 1-21).

Regarding claim 13, Tiedemann discloses the method of claim 1 wherein the method is processed within one or more wireless components selected from the group consisting of mobile stations, base stations, and mobile switching centers (col. 6, lines 10-21).

Regarding claims 21, 28 and 55, Tiedemann discloses a method of executing a handoff operation in a wireless device, comprising:

searching a radio frequency spectrum for a pilot (and plurality of pilots)(col. 7, lines 21-30);

assigning a default value for handoff timeout (i.e., reads on predetermined period of time) corresponding to the pilot (and each set of pilots, e.g., candidate set or neighbor set)(col. 14, lines 16-25);

determining, at the mobile station, an adapted value for handoff timeout, the adapted value based on a call characteristic associated with the pilot (col. 15, line 57- col. 16, line 21); and

making drop decisions for the pilot based on the adapted value of the handoff timeout corresponding to the pilot (col. 14, lines 16-38 and col. 16, lines 1-21).

Regarding claim 22, Tiedemann discloses the method of claim 21 wherein determining adapted values includes; a) measuring the call characteristic; b) determining if the call characteristic is relevant to current conditions; c) in response to determining the call characteristic is relevant, determining an adapted value for handoff timeout of a corresponding pilot based on the call characteristic; and d) setting the handoff timeout of the corresponding pilot to the adapted value (col. 13, line 49 to col. 14, line 4 and lines 16-38 and col. 15, line 57 to col. 16, line 21).

Regarding claim 23, Tiedemann discloses the method of claim 22 wherein the call characteristic is selected from the group consisting of handoff frequency, energy level crossing, motion of the wireless device, position of the wireless device, signal quality, and energy variance (col. 10, lines 13-19).

Regarding claim 26, Tiedemann discloses the system of claim 24 wherein the adapted value for handoff timeout is determined at a time selected from the group consisting of at the time of requesting to add a potential pilot (i.e., reads on T\_ADD), at the time of requesting to drop a current pilot (i.e., reads on T\_DROP), at the time of measuring the call characteristic, at the time a pilot energy crosses a threshold, and periodically (col. 15, line 57 – col. 16, line 21).

Regarding claim 27, Tiedemann discloses the method of claim 21, wherein the method is processed within one or more wireless components selected from the group

Art Unit: 2686

consisting of mobile stations, base stations, and mobile switching centers (col. 6, lines 10-21).

Regarding claim 29, Tiedemann discloses a system for determining handoff timing parameters for a wireless device, comprising:

a mobile station to measure a call characteristic that is relevant to current conditions, the mobile station to determine an adapted value for handoff timeout based on the call characteristic (i.e., pilot strength) and to set the handoff timeout to the adapted value (col. 13, lines 49-58, col. 14, lines 16-27 and col. 16, lines 1-21); and

a plurality of base stations to configure limitations on handoff timeout value adaptation by communicating the limitations to the mobile station using a parameter configuration protocol (i.e., reads on base station sending message to mobile unit) (col. 16, lines 19-21).

Regarding claim 30, Tiedemann discloses the method of claim 29, wherein the call characteristic is selected from the group consisting of handoff frequency, energy level crossing (i.e., reads on pilot strength), inherent motion of the wireless device, energy variance (i.e., how pilot strength varies from threshold), and signal quality (col. 10, lines 12-19 and col. 13, lines 49-58 and col. 16, lines 5-21).

Regarding claim 31, Tiedemann discloses the system of claim 29 wherein the adapted value for handoff timeout is determined at a time selected from the group consisting of at the time of requesting to add a potential pilot (i.e., reads on T\_ADD), at the time of requesting to drop a current pilot (i.e., reads on T\_DROP), at the time of

measuring the call characteristic, at the time a pilot energy crosses a threshold, and periodically (col. 15,line 57 – col.16,line 21).

Regarding claim 34, Tiedemann discloses a system for performing handoffs in a wireless communication network, comprising:

a) a mobile station executing (i.e., reads on initiating PSSM to base station) a inherent dynamic handoff timeout algorithm (i.e., via the PSMM) for adapting a handoff timeout value (col. 15,line 57 to col. 16, line 21); and

b) a plurality of base stations, wherein at least one of said plurality of base stations communicate with the mobile station using a parameter configuration protocol (i.e., reads on sending message from base station to mobile) for communicating parameters for use by the dynamic handoff algorithm from at least one of the plurality of base stations to the mobile station (col. 16,lines 18-21).

Regarding claim 35, Tiedemann discloses the system of claim 34, wherein the mobile station measures a call characteristic and wherein the adapting a handoff timeout value is based on the call characteristic (col. 20,lines 48-61).

Regarding claim 36, Tiedemann discloses the system of claim 35 wherein the adapted value for handoff timeout is determined at a time selected from the group consisting of at the time of requesting to add a potential pilot (i.e.,reads on T\_ADD), at the time of requesting to drop a current pilot (i.e., reads on T\_DROP), at the time of measuring the call characteristic, at the time a pilot energy crosses a threshold, and periodically (col. 15,line 57 – col.16,line 21).

Regarding claim 41, Tiedemann discloses the system of claim 35 wherein said dynamic handoff timeout algorithm determines an adapted value for handoff timeout based on said call characteristic and sets the handoff timeout to said adapted value (col. 16, lines 1-21).

Regarding claim 42, Tiedemann discloses the system of claim 35 wherein the call characteristic is selected from the group consisting of handoff frequency, energy level crossing, motion of the wireless device, energy variance, and signal quality (col. 10, lines 13-19).

Regarding claim 43, Tiedemann discloses the system of claim 35 wherein said dynamic handoff timeout algorithm comprises:

- a) a pilot set maintenance component including pilot drop handoff timers (i.e., reads on triggered timer) (col. 16, lines 5-10);
- b) a searcher component to measure pilot energies (col. 7, lines 22-24);
- c) a handoff timeout adaptation algorithm for determining an adapted value for handoff timeout based on said call characteristic (col. 20, lines 48-67 to col. 21, lines 1-2).

Regarding claim 48, Tiedemann discloses the system of claim 34 wherein said dynamic handoff timeout algorithm is implemented in one or more of said plurality of base stations (col. 16, lines 19-20).

Regarding claim 56, Tiedemann discloses the method of claim 55 wherein determining an adapted value includes; a) measuring the call characteristic (i.e., reads on pilot strength) (col. 13, lines 49-58 and col. 15, lines 57 to 67);



b) determining if the call characteristic is relevant to current conditions (i.e., active set) (col. 13, lines 48-67);

c) in response to determining the call characteristic is relevant, determining the adapted value for handoff timeout based on the call characteristic (col. 16, lines 1-21); and

d) setting the handoff timeout to the adapted value (col. 16, lines 18-21).

Regarding claim 57, Tiedemann discloses the method of claim 55 wherein the call characteristic is selected from the group consisting of handoff frequency, energy level crossing, motion of the wireless device, position of the wireless device, signal quality, and energy variance (col. 10, lines 12-19).

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 3,4,24,25,32 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tiedemann, in view of Bertacchi, U.S. Patent No. 5,903,840.

Regarding claims 3,24 and 33, Tiedemann discloses the method of claims 1,21 and 29, respectively but fails to explicitly disclose wherein determining the adapted value includes; determining a predicted handoff performance; and determining the adapted value for the handoff timeout based on the predicted handoff performance.

In a similar field of endeavor, Bertacchi discloses wherein determining the adapted value includes; determining a predicted handoff performance (col. 7, line 55 - col. 8, line 4); and determining the adapted value for the handoff timeout based on the predicted handoff performance (col. 7, line 55 - col. 8, line 4).

At the time of the invention it would have been obvious to one of ordinary skill in the art to modify Tiedemann to include predicted handoff performance as a reason to modify handoff timeout value for the purpose of providing discrete measurement collection for each candidate cell.

Regarding claims 4, 25 and 32, Tiedemann as modified by Bertacchi discloses the method of claims 3, 24 and 29, respectively wherein determining the predicted handoff performance includes; collecting statistics of the call characteristic; and computing the predicted handoff performance based on the call characteristic statistics (see Tiedemann, col. 7, line 55 to col. 8, line 4).

At the time of the invention it would have been obvious to one of ordinary skill in the art to modify Tiedemann to include predicted handoff performance as a reason to modify handoff timeout value for the purpose of providing discrete measurement collection for each candidate cell.

***Allowable Subject Matter***

5. Claims 14-20, 53-54 and 58-70 are allowed.
6. Claims 5-12, 37-40, 44-47, 49-50 and 52 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: prior art of record fails to explicitly disclose the specific details of the independent claims wherein in determining the adapted value includes applying an adaptation function to a current value of the handoff timeout and wherein the adaptation function limits the adapted value between a maximum value and a minimum value and wherein the step of determining the adapted value includes setting the handoff timeout value to a nominal value within a range of values (and permissible) and a method of determining handoff timing parameters for a wireless device, comprising: a) measuring a call characteristic; b) determining if the call characteristic is relevant to current conditions; c) if the call characteristic is relevant; i) determining a predicted handoff performance; and ii) determining the adapted value for the handoff timeout based on the predicted handoff performance; iii) setting the handoff timeout to the adapted value; and d) if the call characteristic is not relevant, setting the handoff timeout to a default value.

### ***Conclusion***

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Lilja et al., U.S. Patent No. 6,456, 847, discloses a timing of handover.

Ramakrishna et al., U.S. Patent No. 6,233,455, discloses a method for utilizing negative T\_COMP to improve handoff reliability.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joy K Contee whose telephone number is 703-308-


0149. The examiner can normally be reached on M (alternating), T & Th, 5:30 a.m. to 2:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marsha Banks-Harold can be reached on 703-305-4379. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Joy Contee

June 20, 2004

  
CHARLES APPIAH  
PRIMARY EXAMINER